

WHAT IS CLAIMED IS:

1. A brake fluid pressure control device comprising:

a controller;

a fluid pressure control unit that operates in accordance with a control signal supplied from the controller and having a plurality of fluid pressure control valves capable of controlling fluid pressures in a plurality of brakes to inhibit rotation of a plurality of wheels;

a plurality of signal lines that connect the fluid pressure control valves to the controller;

the plurality of signal lines are divided into a plurality of signal line groups; and the signal lines of a first one of the signal line groups are connected between the controller and the fluid pressure control unit by a first connector, and the signal lines of a second one of the signal line groups are connected between the controller and the fluid pressure control unit by a second connector.

2. The brake fluid pressure control device according to claim 1, wherein:

the brakes are respectively provided in a front-left wheel, a front-right wheel, a rear-left wheel and a rear-right wheel; and

the brakes are divided such that (a) one or more signal lines connected to one or more fluid pressure control valves corresponding to the brakes provided in the front-left wheel and the rear-right wheel are included in the first one of the signal line groups, and (b) one or more signal lines connected to one or more fluid pressure control valves corresponding to the brakes provided in the front-right wheel and the rear-left wheel are included in the second one of the signal line groups.

3. The brake fluid pressure control device according to claim 2, wherein:

the fluid pressure control unit includes:

a connecting passage connecting at least (a) a brake cylinder for the front-left wheel to a brake cylinder for the front-right wheel or (b) a brake cylinder for the rear-left wheel to a brake cylinder for the rear-right wheel; and

a communication state control valve provided in the connecting passage and switched in accordance with a control signal supplied from the controller between a communication state in which two of the brake cylinders communicate with each other, and a shut-off state in which the two brake cylinders do not communicate with each other.

4. The brake fluid pressure control device according to claim 1, wherein:
the brakes are respectively provided in a front-left wheel, a front-right wheel, a rear-left wheel and a rear-right wheel; and

5 the brakes are divided such that (a) one or more signal lines connected to one or more fluid pressure control valves corresponding to the brakes provided in the front-left wheel and the front-right wheel are included in the first one of the signal line groups, and (b) one or more signal lines connected to one or more fluid pressure control valves corresponding to the brakes provided in the rear-left wheel and the rear-right wheel are included in the second one of the signal line groups.

5. The brake fluid pressure control device according to claim 1, further comprising:
a pressurizing device that pressurizes operating fluid by a motive power, wherein:
the fluid pressure control valves control fluid pressures in the brakes based on a fluid pressure in the pressurizing device.

6. The brake fluid pressure control device according to claim 5, wherein:
the pressurizing device is a pump device including a pump pressurizing and discharging operating fluid and a pump motor generating a driving force by electric energy and driving a pump by the driving force; and
the fluid pressure control valves control fluid pressures in the brakes based on a fluid pressure in the pump device.

7. The brake fluid pressure control device according to claim 1, further comprising:
a pump device that includes a pump pressurizing operating fluid and a pump motor generating a driving force by electric energy and operating the pump by the driving force; and
an operation state detector that detects a fluid pressure in a fluid pressure source that generates a fluid pressure corresponding to an operation force of a brake actuating member, wherein:
the fluid pressure control valves are control valves capable of controlling fluid pressures in the brakes based on a fluid pressure in the pump device; and
the controller outputs a control signal to the fluid pressure control valves based on a fluid pressure detected by the operation state detector.

8. The brake fluid pressure control device according to claim 7, wherein:
the brakes include front-wheel-side brakes and rear-wheel-side brakes;
the pump device and the fluid pressure source are connected to brake cylinders for the front-wheel-side brakes;

5 the fluid pressure source is not connected to brake cylinders for the rear-wheel-side brakes; and
the pump device is connected to the brake cylinders for the rear-wheel-side brakes.

9. The brake fluid pressure control device according to claim 8, wherein:
10 the fluid pressure control valves include pressure-increasing control valves provided between the brake cylinders of the brakes and the pump device, and pressure-reducing control valves provided between the brake cylinders and a low-pressure source;
the pressure-reducing control valve provided on the side of the front wheels is normally closed; and

15 the pressure-reducing control valve provided on the side of the rear wheels is normally opened.

10. A brake fluid pressure control device comprising:
a plurality of operation state detectors that detect an operation state of a brake actuating member and output a detection signal;
20 a controller that controls fluid pressures in a plurality of brakes based on at least one of a plurality of values detected by the operation state detectors;
a plurality of signal lines that connect the operation state detectors to the controller;
the signal lines are divided into a plurality of signal line groups; and
25 the signal lines of a first one of the signal line groups are connected between the controller and some of the operation state detectors by a first connector, and the signal lines of a second one of the signal line groups are connected between the controller and others of the operation state detectors by a second connector.

30 11. The brake fluid pressure control device according to claim 10, wherein:
the operation state detectors are sensors that output a detected value corresponding to an operation stroke of the brake actuating member.

12. A brake fluid pressure control device comprising:

a fluid pressure control unit that is operated by electric energy and has a plurality of fluid pressure control valves that control fluid pressures in a plurality of brakes to inhibit rotation of a plurality of wheels;

an electric energy supply device that includes a plurality of power sources and that supplies electric energy to the fluid pressure control valves;

the fluid pressure control valves are divided into a plurality of control valve groups; and

the electric energy supply device supplies electric energy from different ones of the plurality of power sources to different ones of the plurality of control valve groups.

13. The brake fluid pressure control device according to claim 12, wherein:

each of the power sources connected to one fluid pressure control valve is provided exclusively for the one fluid pressure control valve.

14. The brake fluid pressure control device according to claim 12, wherein:

the power sources have different rated voltages.

15. The brake fluid pressure control device according to claim 14, wherein:

each of the fluid pressure control valves includes a solenoid having a coil and a movable portion operated in accordance with a state of supply of electric energy to the coil; and

the solenoid of the fluid pressure control valves has a plurality of coils connected to power lines of the plurality of power sources.

16. The brake fluid pressure control device according to claim 15, wherein:

the coils are formed by winding lead wires connected to the plurality of power sources; and

the coils are arranged in series.

17. The brake fluid pressure control device according to claim 15, wherein:

the coils are formed by winding lead wires connected to the plurality of power sources; and

the coils are arranged in parallel.

18. The brake fluid pressure control device according to claim 12, further comprising:

a pump device that has a pump pressurizing and discharging operating fluid and a pump motor generating a driving force by electric energy and driving the pump by the driving force, wherein:

the fluid pressure control valves control fluid pressures in the brakes based on a fluid pressure in the pump device; and

the electric energy supply device supplies electric energy to the pump motor independently from the plurality of power sources.

19. The brake fluid pressure control device according to claim 18, wherein:

the pump motor includes a coil disposed in at least one of a stator and a rotor and drives the pump by a driving force generated by supplying electric energy to the coil; and

the coil includes a plurality of coil members connected to power lines of the plurality of power sources.

20. A brake fluid pressure control device comprising:

a fluid pressure control unit that is operated by electric energy and has a plurality of fluid pressure control valves that control fluid pressures in a plurality of brakes to inhibit rotation of a plurality of wheels;

an electric energy supply device that includes a plurality of power sources and that supplies electric energy to the fluid pressure control valves;

the electric energy supply device supplies electric energy to at least one of the fluid pressure control valves from at least two power sources of the plurality of power sources.

21. The brake fluid pressure control device according to claim 20, wherein:

the power sources have different rated voltages.

22. The brake pressure control device according to claim 20, wherein:

each of the fluid pressure control valves includes a solenoid having a coil and a movable portion operated in accordance with a state of supply of electric energy to the coil;

the solenoid of the fluid pressure control valves has a plurality of coils connected to power lines of the plurality of power sources.

23. The brake fluid pressure control device according to claim 20, further comprising:
a pump device that has a pump that pressurizes and discharges operating fluid and a
pump motor that generates a driving force by electric energy and drives the pump by the
driving force, wherein:

5 the fluid pressure control valves control fluid pressures in the brakes based on a fluid
pressure in the pump device; and
the electric energy supply device supplies electric energy to the pump motor
independently from the plurality of power sources.

10 24. The brake fluid pressure control device according to claim 23, wherein:
the pump motor includes a coil disposed in at least one of a stator and a rotor and
drives the pump by a driving force generated by supplying electric energy to the coil;
and

15 the coil includes a plurality of coil members connected to power lines of the plurality
of power sources.

25. A brake fluid pressure control device comprising:
a plurality of operation state detectors that detect an operation state of a brake actuating
member and that are capable of detection through supply of electric energy;

20 an electric energy supply device that includes two or more power sources and that
supplies electric energy to the plurality of operation state detectors;

a controller that controls fluid pressures in a plurality of brakes based on at least one of
a plurality of values detected by the operation state detectors;

the operation state detectors are divided into a plurality of detector groups; and

25 the electric energy supply device supplies electric energy to the detector groups
independently from different ones of the plurality of power sources.